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completely in 10 minutes. With saliva, starch was dissolved in the presence of 1% or less boric acid in from 8.5 to 11.5 minutes; with no boric acid 11.5 minutes was required. With pepsin, the digestion of egg albumen was not retarded in the presence of 1% boric acid. With zymine, milk albumen with 1% boric acid was completely peptonized in  $2\frac{1}{2}$  hours. With Blumenthal's chymosin, a far larger amount of boric acid than was necessary for preservation of food did not affect the fermenting action unfavorably. While boric acid thus does not retard digestion, its physiological action still remains to be finally settled.

J. L. H.

#### SCIENTIFIC NOTES AND NEWS.

##### THE 'ENCHANTED MESA' OF NEW MEXICO.

A SURVEY has just been made of the 'Enchanted Mesa,' or Mesa Encantada, of New Mexico, by a party sent out by the Bureau of American Ethnology.

This mesa was brought into prominence several years ago through the work of Bandelier, who ascertained that the neighboring Acoma Indians have a tradition that their ancestors formerly occupied the summit, but abandoned it, together with a part of the tribe, in consequence of the destruction of the pathway leading up one of its precipitous sides; the catastrophe, which was doubtless due to a cloud-burst, being ascribed to supernatural agency. The same tradition was subsequently obtained by C. F. Lummis, a well-known student of the Southwestern Indians, and also (with some confirmatory evidence) by F. W. Hodge, of the ethnologic bureau. The traditional catastrophe was so magnified by repetition and so enveloped in mystery that the Indians, and after them the white settlers, had come to regard the mesa as inaccessible.

Two years ago Mr. Hodge, then studying the Acoma Indians, planned to visit the summit in order to seek for traces of the alleged occupancy in prehistoric times; but he was deterred by regard for the sentiments of the Indians,

who held the eminence sacred. During the present season, Professor William Libbey, of Princeton University, after elaborate preparations, ascended the mesa, without finding (so far as the accounts published in the newspapers indicate) evidence of occupancy. Reports of this failure duly reached the neighboring Indians; they were annoyed by the suggested impeachment of their tradition, and were thereby the more easily induced to permit the ethnologic party to visit their holy place. So, on September 3d, Mr. Hodge, accompanied by Major George H. Pradt, of Laguna, New Mexico, a U. S. Deputy Surveyor; Mr. A. C. Vroman, a photographer of Pasadena, California; Mr. H. C. Hayt, of Chicago, and two Laguna Indians, proceeded from the Indian pueblo of Acoma to the foot of the mesa, three miles distant, where they were joined by three Acoma Indians. After measuring the eminence by triangulation (the mean of two determinations is 431 feet above the plain on the west), the party at once ascended along the ancient route, and encamped on the summit for the night. During the afternoon and the next day Mr. Hodge examined the ground critically, while Major Pradt made a survey of the mesa, and Mr. Vroman secured a number of photographs. Several potsherds, two stone axes (broken), a fragment of a shell bracelet and a stone arrowpoint were the chief evidences of former occupancy found on the narrow storm-swept crest; but abundant potsherds, etc., were found in the talus swept down from the summit. All vestiges of the ancient trail ascending the talus, and continued thence to the summit by hand and foot holes in the solid rock, have been obliterated; but some traces of the holes remain. This verification of an Indian tradition notable for inherent evidence of accuracy is peculiarly gratifying to students of anthropology.

Except for the easily-removed opposition of the Acoma Indians, no difficulty was found in ascending the mesa, save for a space of a few feet at the top of the cleft; this was easily crossed on a light extension ladder carried to meet emergencies, and might have been passed with the aid of a geologic hammer to cut a few hand-holes in the steepest part of the rock.

W J M

## GENERAL.

WE record with much regret the death of Mr. Theodore Lyman, the only honorary member of the National Academy of Sciences, formerly member of Congress and a distinguished officer in the army during the Civil War. Colonel Lyman was born in 1833 and died on the night of September 9th, at his summer home, at Nahant, Mass. He studied under Louis Agassiz, whose daughter he married. Colonel Lyman was a zoologist and geologist of distinction. He was the representative of a class more common in Great Britain than in the United States—a man of wealth, public spirit and wide culture, who contributed both directly and indirectly to the advancement of education, science and civilization.

THE membership of the National Academy of Science is now eighty-three. The deaths and elections to the Academy during the last six years have been as follows :

<i>Deaths.</i>		<i>Elections.</i>
Julius E. Hilgard, John Le Conte, Joseph Leidy, Miers F. Longstreth.	1891.	None.
T. Sterry Hunt, Joseph Lovering, J. S. Newberry, Lewis M. Rutherford, William P. Trowbridge, Serenio Watson.	1892.	Carl Barus, S. F. Emmons, M. Carey Lea.
W. H. C. Bartlett, F. A. Genth.	1893.	None.
Charles E. Brown-Sequard, Josiah P. Cooke.	1894.	None.
James D. Dana, John Newton, James E. Oliver.	1895.	W. L. Elkin, C. S. Sargent, W. H. Welch, C. O. Whitman.
Thomas L. Casey, G. Brown Goode, Benjamin A. Gould, H. A. Newton.	1896.	C. D. Walcott, R. S. Woodward.
E. D. Cope, M. Carey Lea, A. M. Mayer, J. H. Trumbull, F. A. Walker, Theodore Lyman.	1897.	E. W. Morley, C. S. Minot, W. H. Dall, F. A. Gooch.

The original act incorporating the National Academy, in 1863, limited the number of ordinary members to fifty, but this restriction was removed in 1870. A wise conservatism has regarded one hundred members as a suitable limit, but there appears to be no reason why the membership should decrease while the scientific activity of the country increases. Fifteen new members of the Royal Society are elected annually.

THE seventh annual directory of the Scientific Alliance of New York, for the year ending 1897, has been published by the Council. The number of members is 1,055, an increase of forty over last year. The membership of the several societies comprising the Alliance is as follows :

The New York Academy of Sciences, resident members and fellows,	284
Torrey Botanical Club, active members,	221
New York Microscopical Society, active members,	88
The Linnæan Society of New York, resident members,	169
The New York Mineralogical Club, total membership,	65
American Mathematical Society, local membership,	47
The New York Section of the American Chemical Society, active members,	282
The New York Entomological Society, active members,	48

ABOUT fifty members of the British Association from Great Britain, including Lord Kelvin, Lord Lister and Sir John Evans, have taken part in the extended excursion to the Pacific Coast following the Toronto meeting of the Association.

THE item, circulated by the newspapers, to the effect that four Ohio men of science had been treated with scant courtesy at the meeting of the British Association, is entirely without foundation. The complaint comes from only one of the number, a collector of fossils and a manufacturer of casts of the same, who failed to secure an announcement, concerning his specimens, in the geological section. There was, of course, no international feeling involved in the matter. The other three, professors in Cleveland and Oberlin, whose names were used

without their knowledge, repudiate any responsibility for the complaint, and say that they experienced nothing but perfect courtesy while at the Toronto meeting. Indeed, the original report contains numerous errors, for which the original complainant himself does not wish to be held responsible.

FRANZ PULSZKY, formerly director of the National Hungarian Museum and superintendent of the public museums and libraries of Hungary and a writer on archaeological subjects, has died, aged 82 years. He took an important part in the attempts to establish Hungarian independence, and visited America with Kossuth, being long under sentence of death for treason against Austria.

THE Hon. Charles D. Walcott, Director of the U. S. Geological Survey, left San Francisco on September 7th, for the Yosemite Valley, accompanied by Assistant F. B. Weeks. According to a dispatch to the *New York Evening Post* he proposes to make topographical maps, on a two-mile scale, of all the forest reserves in California, which, including recent additions, comprise no less than 6,647,000 acres. On these maps the distribution of forests will be pointed out, showing the commercial and the non-commercial timber, the agricultural lands included in the forest reserves, and all settlements, roads, houses and other improvements upon the national forest domain. Since leaving Washington on July 23d Mr. Walcott has inspected the forest reserves in Wyoming, Montana, Idaho, Washington and Oregon.

THE Jackson-Harmsworth expedition duly reached London on September 3d. The results of three winters spent in scientific work in Franz Josef Land will doubtless include valuable contributions not only to Arctic geography and meteorology, but also to geology, zoology and botany.

MR. WALTER WELLMAN, the journalist and Arctic explorer, has returned to New York after a visit to Norway for the purpose of making arrangements for his proposed Arctic expedition. According to statements in the daily papers, he proposes to sail from Bergen in a staunch steamship on June 13th of next year for Franz Josef Land. He expects to estab-

lish a supply station at Cape Flora and to reach Cape Fligely before the winter sets in. Then, in 1899, he intends to try to traverse on sleds the 550 miles to the Pole.

MR. A. W. GRABAU, of Boston, is continuing the field excursions for the study of natural history begun last year and made possible by the generosity of an anonymous donor. He met applicants for membership at the Museum of Natural History on September 11th and gave an account of the course in marine zoology which will take the class to the seashore near Boston. At two o'clock the party left for Beverly. Other excursions have been arranged as follows: September 15th, Revere Beach; September 18th, Nahant; September 22d, Marblehead; September 25th, Swampscott; September 29th, Bass Point.

THE *New York Evening Post* reports that the Chabot Observatory, of Oakland, Cal., has decided to send a special expedition to India to observe the total eclipse of the sun. It will be headed by astronomer Burckhalter, whose expenses will be paid by William Pearson, of San Francisco. Dr. George C. Pardee will provide a new lens for the use of the observers. The expedition is, of course, entirely distinct from that to be sent out by the Lick Observatory, the funds for which were provided by the late Mr. Crocker.

THE Prince of Monaco, in his steam yacht, the Princess Alice, is said to have completed a season's researches in the Azores.

IN view of the outbreak of yellow fever at Ocean Springs, the Surgeon-General has instructed Dr. Wasdin to investigate the disease in accordance with Dr. Sanarelli's methods and has forwarded him the necessary outfit.

THE daily papers report Dr. H. B. Guppy, an English naturalist, returned to Napoopee, Hawaii, on September 1st, after spending twenty-three days alone on the summit of Mauna Loa, at an elevation of 13,000 feet above sea level. He carefully explored the crater of the volcano and made collections of the fauna and flora.

AN Engineers' Club has been established in Chicago, the object of which is to be the advancement of engineering in its several branches, the professional improvement of its members,

and the encouragement of social intercourse among men of practical science. It is proposed to publish proceedings, to maintain a library and a collection of drawings and models.

A NATURAL Science Association was organized in Jersey on August 5th, with Dr. A. C. Goodfrey as the first President.

THE French Society of Civil Engineers appointed some time since a committee to consider the propositions that have been made for the decimalization of time and angles. This committee has made its report adverse to the proposed reform but recommending the numbering of the hours of a day continuously up to twenty-four.

IN connection with the Brussels Exposition there was held an International Congress of Commerce and Industries from September 7th to 11th.

THE library at Massillon, Ohio, has recently received generous gifts. The residence of the late Mr. Nahum Russell, valued at \$30,000, has been presented to the city by his daughters, and Mr. J. W. McClymonds has given an endowment fund of \$20,000.

THE British 'blue-book,' recently issued relating to the nature and extent of the trade of Australia and adjacent colonies, contains some interesting and useful information for American manufacturers. It appears that, in New Zealand, for example, Germany and Belgium, not Great Britain, send in the greater part of the supply of firearms. Glassware comes from Belgium; saws, almost exclusively, from the United States. Axes come exclusively from the United States, and carpenters' hammers from the same source mainly, though England still furnishes the heavier and ruder sorts, such as are used by blacksmiths and machinists. Germany and Belgium supply nails, and the former is gradually encroaching upon the market for machine tools, formerly controlled by England. All the agricultural machinery is furnished by the manufacturers of the United States, who produce the most remarkable combination of lightness and strength, and yet sell at lower prices than even Continental nations can yet attain. The reasons for Great Britain's 'temporary decline' are said to be: Conservatism, lack of versatility and adaptability, dis-

dain of methods successfully adopted by competing vendors, stringency in calling for payment and 'a general haughtiness in trading transactions.' As one of the London trade papers says: "When a wealthy London corporation builds and equips a London railroad with American plant it is time for English manufacturers to see themselves as others see them."

IT is stated in *Machinery* that Acetylene is now in use in several of the Paris omnibuses. The generator weighs about 29 lb., and is carried under the front steps. Each load of carbide is about 0.71 lb., and produces about 3 cubic feet of gas, which is enough for 6½ hours, with a light of 16 candles. The pressure is regulated so as not to exceed 4 inches of water. The cost is less than that of petroleum. Electrical accumulators to do the same work weighed nearly 3 cwt., and did mischief, so that they were glad to give them up.

THE *Philosophical Review*, edited by President Schurman and Professors J. E. Creighton and James Seth, of Cornell University, and published since its foundation by Ginn & Co., will next year be published by The Macmillan Company.

THE Principles of Sociology, by Professor Franklin H. Giddings, of Columbia University, of which a third edition has recently been published by The Macmillan Company, has been translated into French and German, and a Spanish translation is announced for early publication.

VOLUME two of the *Maryland Geological Survey Reports*, which will contain a description of the building and decorative stones of the State, is well advanced and will be issued the coming winter.

PRESIDENT C. G. WILSON, of the New York Board of Health, has made a report showing the remarkable decrease in the death-rate of New York City since 1823. Figures for the first eight months for each of the last six years.

	Estimated Population.	Deaths, Jan. to Aug., inclusive.	Death rate.
1893.....	1,758,010	31,982	27.3
1894.....	1,809,353	29,397	24.4
1895.....	1,879,195	30,699	24.5
1896.....	1,934,077	30,307	23.5
1897.....	1,990,562	26,866	20.2

THE report of the committee of the British Council on Education on schools for the blind and deaf, for the past year, has been published as a Blue-book, signed by the Duke of Devonshire and Sir John Gorst, and is abstracted in the *London Times*. During the year ending August 31, 1896, the number of certified schools increased from 84 to 91. These schools provide accommodation for 1,476 blind children (268 day scholars and 1,208 boarders), and for 3,004 deaf children (1,699 day scholars and 1,305 boarders). The total grants paid for the year amounted to £15,629 12s. A general report by the Rev. T. W. Sharpe, Senior Chief Inspector, follows, covering the year ended March 31, 1897. He states that the year has been marked by steady progress, and pleads for higher payment of teachers, both for the blind and deaf. The hope is expressed that a recent return called for by the department will produce some result. This return requires each school authority to give the name of every blind and deaf child in its district between the ages of 5 and 16 and 7 and 16 respectively. The address of the parent or guardian and the provision made under the statute for the education of the child are also required. With regard to deaf children, Mr Sharpe states that the teaching on the oral system in some institutions is very imperfectly carried out, and that oral teaching is in danger of being discredited from the fact that, however excellent the school teaching may be, the continued practice of speech outside the schoolroom is either left to chance or so mixed with signs that it receives very little care.

#### UNIVERSITY AND EDUCATIONAL NEWS.

DR. ANDREWS has withdrawn his resignation from the presidency of Brown University.

WE should be glad to welcome a 'Cosmopolitan' reading circle or Correspondence School, even though its standard should be no higher than that of *The Cosmopolitan* magazine. But the projectors of the 'Cosmopolitan University' cannot make silver equal to gold by debasing a name. Fortunately, the performance is illegal in the State of New York. Section 33, Chapter

378, of the laws of the State reads as follows:

No individual, association or corporation not holding university or college degree-conferring powers by special charter from the Legislature of the State or from the regents shall confer any degrees, or after January 1, 1893, shall transact business under or in any way assume the name university or college, till it shall have received from the regents under their seal written permission to use such name.

The minimum requirements for a degree-conferring institution have been carefully defined by the regents, and it is scarcely needful to state that these cannot be met by an annex to a magazine.

AN editorial in the last number of the *Educational Review* on the Brown University incident concludes with the moral: "What a comment this occurrence is on the project for a national university at Washington, that is still kept alive by earnest but, we believe, misguided men!" The article was written on the assumption that "Rhode Island and Providence will not support an educational institution in which an officer of prominence holds views antagonistic to their own on an economic question that is under present discussion." The frank and wise declaration of the corporation of Brown University for academic freedom, even under aggravating circumstances, shows that the *Educational Review* is needlessly pessimistic in its point of view. It would, indeed, be better to have a struggle for academic freedom in a national university and lose than not to have the university and the struggle. The effect on other universities and on the education of the people would be beneficial, and the defeat would be but temporary. Neither pedagogy nor politics is at present a science, and they only come within the scope of this JOURNAL in so far as they concern the advancement of science. But an affiliation of the national scientific institutions at Washington, with power to grant degrees for research, would be the basis for a university in which science and investigation would have the place now held at Oxford, *e. g.*, by the classics and information. It is a scientific experiment that all men of science should advocate.

THE *Educational Review*, however, appears to